Newton GIS 56GIS02 4

#12419

CONTRACT
FOR
ENGINEERING SERVICES

wp:newton4.gis
14 May 98

THIS AGREEMENT, made and entered into this 18th day of May, 1998, by and between Newton County, Indiana, acting by and through its Board of County Commissioners, (herein called the "COUNTY") and Beam, Longest & Neff, L.L.C., Consulting Engineers, 8126 Castleton Road, Indianapolis, Indiana 46250, (herein called the "CONSULTANT").

WITNESSETH:

WHEREAS, the COUNTY is proposing to convert their existing Cadastral (Parcel) mapping into a seamless Geographic Information Systems (GIS) digital format and create overlaying digital land use and soils mapping, hardcopy mylar prints of existing aerial photography and parcel mapping, an initial assessment calculations, and,

WHEREAS, the COUNTY is proposing to have the digital mapping maintained, hardcopy mylar prints maintained, and updated assessment calculations, and,

WHEREAS, the COUNTY desires to obtain the professional services required in the preparation of said mapping, and,

WHEREAS, the CONSULTANT is qualified and prepared to perform the services required to convert said mapping, and they agree to perform such work under the terms and conditions herein set forth, and,

WHEREAS, said funds are available for professional services, and,

WHEREAS, the COUNTY is authorized to enter into a contract,

IT IS THEREFORE MUTUALLY AGREED that the COUNTY does hereby employ the CONSULTANT to perform the professional services specified herein and agrees to pay for such services the amounts hereinafter specified; and the CONSULTANT agrees to perform such services as are herein enumerated.

Definitions

The following are definitions to describe the final project scope of work and standards:

Reference Dimensions - Reference dimensions shall be defined as dimensions on plat maps usually derived from aliquot parts descriptions. These dimensions are

usually fractional mile increments such as 2640', 1320', 660', 330', etc., and the associated acreages are often exact aliquot acreages.

Hard Dimensions - Hard dimensions shall be defined as dimensions on plat maps usually derived from coordinate geometry calculations of property deeds. These dimensions are usually unique and shown to decimal accuracy such as 359.1', 943.27', etc.

Assumed Section Corner - Assumed section corner location shall be defined as the location of a section corner whose location coordinates are not known and whose location on the base map is determined by one of the following methods:

1. Determine location from USGS 7.5 Minute Quadrangle maps
2. Using sectio.. corner references from points identifiable on the base map
3. Intersection of centerlines of apparent rights-of-way
4. Original section corner survey data
5. Determining a common corner perpetuated by secondary evidence and the data on the plat maps

Original Errors or Conflicts - Original errors or conflicts are mistakes and/or omissions, and/or discrepancies of unknown cause on the hard copy plat or other source documents supplied by the COUNTY to the CONSULTANT for the purpose of converting the plat map into a digital format. Original errors are usually found as gaps, overlaps, incorrect dimension, incorrect property line placement, erroneous PINs, etc.

Secondary Evidence - Secondary evidence is defined as features on the base map that indicate a property line or section corner. Secondary evidence can be fence lines, center lines of roads, woods lines, changes in ground use or texture, common walls in adjacent buildings, etc.

Spatially Adjust - Spatially adjust is defined as the graphical process of manipulating cadastral boundaries and/or components of the cadastral boundaries (by changing the length and/or placement and/or rotation (orientation) and/or shape) in respect to other surrounding cadastral boundaries usually in order to calibrate the cadastral mapping to a base map.

Property Gap - A gap is defined as a void between possible adjoining property lines that cannot be compensated for by adjusting the property lines. The limit of the adjustment shall be the accuracy of the base map (± 10').

Property Overlap - An overlap is defined as an overrun of adjacent property lines that cannot be compensated for by adjusting the property lines. The limit of the adjustment shall be the accuracy of the base map (± 10').

SECTION I. OBLIGATION OF THE CONSULTANT

1.0 DIGITAL PARCEL MAPPING

CONSULTANT shall provide the following services related to the conversion of Cadastral (Parcel) mapping (approximately 10,000 parcels) into a digital format and spatially adjust the cadastral mapping to the base map.

1.1 The CONSULTANT shall convert the COUNTY'S existing hard copy parcel maps into a digital (vector) format using drawing techniques with the intent not to create new original cadastral mapping, but to create mapping similar to the original mapping in a digital form. The mapping shall be in a format for GIS software.

1.2 The CONSULTANT shall spatially adjust and edge-match the digital plats to overlay the COUNTY'S digital orthophotography base map, using drawing techniques. During this process, it is assumed that the base map is more accurate and consistent than the original plat maps and therefore the plat maps will be adjusted to fit the constraints of the base map.

1.2.1 When drawing the parcel maps, the CONSULTANT shall use the hard dimension and/or reference dimensions depicted on the plat maps and/or secondary evidence to draw the length of the property lines. When necessary, the length of the property lines will be adjusted in order to spatially adjust the property lines within the constraints of the base map.

1.2.2 When drawing the parcel map, the placement of the property lines shall be determined by secondary evidence and/or measurement using the dimensions of adjacent property lines from section corner or assumed section corner locations and/or other reasonable assumptions made by the CONSULTANT.

1.2.3 Right-of-way widths will be determined by data supplied by the COUNTY or as shown on the existing plat maps. Road and railroad right-of-way will be used as property lines on a case-by-case basis. Road right-of-way will have precedence over railroad right-of-way when depiction is in conflict.

1.2.4 Property ties will be converted as depicted on the existing plat maps in standard sizes established for this project.

1.2.5 Dimension text will be displayed as depicted on the existing plat maps in standard sizes established for this project. In most cases, the length of property lines will not match the dimension text. If the difference between the dimension text and the length of the line exceeds ten feet (base map accuracy), the dimension text for the property line will be placed on a different layer to identify the conflict.

1.2.6 Hydrology depicted in vector format on the base map will be used in place of hydrology depicted on the existing parcel maps.

1.2.7 Section lines will be assumed to function as property lines. All property lines will extend to the section lines where applicable.

1.2.8 Section corners or assumed section corners will be indicated by a "tic" symbol with the adjoining section indicated.

1.2.9 Roads will be labeled on the north and west side of the road with the name indicated on the plat maps in standard sizes established for this project.

1.2.10 Parcel identification numbers (PIN), lot numbers and acreage will be indicated for each parcel, if known. Standard sizes of the text will be established for this project. In cases where space is limited, the placement of PINs, lot numbers and acreage will be adjusted as needed.

1.2.11 Since the conversion technique will not involve deed description, the CONSULTANT in general will not be able to review or correct for original errors or conflicts; however, errors discovered during the conversion process will be noted by label or by placement in the layer structure in the GIS software. In some cases, minor errors or conflicts may be corrected within the limits of the information available or by reasonable assumptions made by the CONSULTANT. Work requested to correct errors and conflicts shall be covered under Section II, Item 4.

1.2.12 Upon completion of the first township, the CONSULTANT will review the work with the COUNTY and project

standards will be discussed. The first township will function as the pilot area and be used as the final establishment of the project standards, when approved by a designated COUNTY representative. Any changes to the established standards will be indicated by the CONSULTANT in writing or graphical example.

1.2.13 Hardcopy plots of data created under this contract are not included and not covered by the fees specified under Section II.

1.3 In addition to the parcel boundaries, the following will be converted if depicted on the source document (parcel maps) supplied to the CONSULTANT by the COUNTY:

1.3.1 Boundaries

- County
- Political Township
- Grant Lines
- Subdivision
- Municipal
- Civil Township
- Section Lines

1.3.2 Text

- Road Names
- Railroad Names
- Subdivision Names
- Lot Numbers
- Town Names
- Parcel Dimensions
- Parcel Numbers
- Parcel Acreage

1.3.3 Other Features

- Land Ties
- Apparent Road Right-of-Way
- Apparent Railroad Right-of-Way

1.4 The boundaries shall be in a topological data structure for a GIS software. The CONSULTANT shall also tag the boundaries to enable a link between the graphical database and a non-graphical database.

2.0 DIGITAL LAND USE MAPPING

The CONSULTANT shall provide the following services related to the conversion of land use mapping:

2.1 For agricultural parcels, convert land use mapping into a digital format. The land use mapping will be determined at the discretion of the CONSULTANT using digital orthophotography as a basis for determination.

2.2 Tag each land use polygon with the correct classification. The classification will be limited to the following land types:

4	Tillable
5	Non-Tillable
6	Woodland
9	Homesite
72	Farm Pond and Water

2.3 The CONSULTANT shall delineate land type 72 which indicates land covered with a farm pond or flowing water. The information will be obtained from the Soil Conservation Service soils maps.

2.4 If Federal Emergency Management Agency (FEMA) maps are provided by the COUNTY, the CONSULTANT shall delineate floodplain areas from the FEMA maps. This information will be used to define the following land types, as applicable:

41	Occasional Flooding
42	Severe Flooding

2.5 If represented graphically by the COUNTY on copies of aerial photography, the following land types will be delineated by the CONSULTANT

21	Classified Forest
22	Wildlife Habitat
23	Riparian Land
24	Windbreak
25	Filterstrip
43	Farmed Wetland
71	Farm Buildings and Barn Lots
73	Wetlands
81	Legal Ditch
82	Public Roads
83	Public Utilities

3.0 DIGITAL SOILS MAPPING

The CONSULTANT shall provide the following services related to the conversion of soils mapping into a digital format:

3.1 From soils maps obtained by the CONSULTANT from the Soil Conservation Service, digitally reproduce and create a seamless soils map covering the COUNTY. The digital soils map is to be geo-corrected

so as to approximately overlay the digital base map.

3.2 Each area of soil type is to be created as a separate polygon and tagged with the correct soil type.

3.3 Provide to the COUNTY an initial assessment report for the agricultural parcels in the COUNTY.

3.4 The assessment report will be in ASCII format by section of the measured acreage of each unique land type and soil identification combination contained in each agricultural parcel.

4.0 HARDCOPY MYLAR PRINTS

4.1 The CONSULTANT shall provide an initial set of 20" x 24" mylar prints of parcel mapping aerial photography (from digital orthophotography).

4.2 The following is the estimated sheets for the mylar prints:

1" = 400' 403

1" = 100'

Lake	32
Lincoln	32
McClellan	4
Colfax	4
Beaver	16
Jackson	4
Washington	4
Iroquois	16
Jefferson	24
Grant	16
	152
Total	555
USE	600

5.0 PARCEL MAINTENCE

5.1 The CONSULTANT shall provide ongoing maintenance of digital parcel mapping by conducting splits and joins when submitted to the CONSULTANT by the COUNTY.

5.2 The CONSULTANT shall provide updated mylar prints of aerial photography and parcel mapping when requested by the COUNTY